

AD-A126 218

REQUIRED OPERATIONAL CAPABILITY (ROC) NUMBER LOG 162
FOR A LIGHTWEIGHT ONE-BURNER STOVE(U) MARINE CORPS
WASHINGTON DC 04 FEB 83 USMC-ROC-LOG-1.62

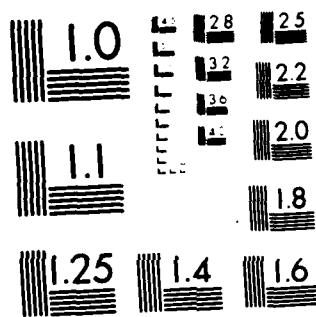
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DEPARTMENT OF THE NAVY
HEADQUARTERS UNITED STATES MARINE CORPS
WASHINGTON, D.C. 20380

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4 FEB 1983

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From: Commandant of the Marine Corps
To: Distribution List
Subj: Required Operational Capability (ROC) No. LOG 1.62 for
a Lightweight, One-burner Stove
Ref: (a) MCO 3900.4B
Encl: (1) ROC No. LOG 1.62 for a Lightweight, One-burner Stove

1. This letter establishes and promulgates ROC No. LOG 1.62 for
a Lightweight, One-Burner Stove. The ROC has been developed in
accordance with the reference and is contained in the enclosure.

2. The Commanding General, Marine Corps Development and
Education Command (Director, Development Center) is the Marine
Corps point of contact for the development efforts pertaining to
the Lightweight, One-burner Stove.

Eugene B. Russell
Eugene B. RUSSELL
DEPUTY CHIEF OF STAFF FOR RD&S

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REQUIRED OPERATIONAL CAPABILITY (ROC) NO. LOG 1.62
FOR A
LIGHTWEIGHT, ONE-BURNER STOVE

1. STATEMENT OF THE REQUIREMENT. Marines engaged in combat operations in cold weather environments require a small, light-weight stove to heat rations and water for fire team and squad sized groups. An Initial Operational Capability (IOC) of FY 1987 is required.

2. THREAT AND OPERATIONAL DEFICIENCY

a. Threat. Not applicable.

b. Operational Deficiency. The conversion of tactical vehicles from gasoline to diesel fuel will reduce the availability of gasoline in Marine Air-Ground Task Forces beginning in FY 1985. The Stove, Gasoline Burner, M1950 (Squad Stove) which has been used extensively by Marine Corps units engaged in cold weather operations cannot burn diesel fuel and its design causes it to be marginally stable when used for cooking. This creates a hazard to the occupants of small shelters. The reliability of this stove has also been poor in cold environments. A new stove with a stable, low profile design and capable of burning a variety of fuels would provide a safer and logistically simpler item.

3. OPERATIONAL AND ORGANIZATIONAL CONCEPTS

a. Operational Concept. The Lightweight, One-burner Stove will be used as a cooking and heating unit for groups of from two to five men operating in an isolated or forward area where the use of field mess cooking equipment is not practical.

b. Organizational Concept. The Lightweight, One-burner Stove will be issued as a one-for-one replacement for the Stove, Gasoline Burner, M1950.

c. Training and Support Requirements

(1) No formal specialized training will be required for the user.

(2) The Stove will require user maintenance similar to that required for the replaced item.

(3) Impact on the Marine Corps supply system will be minimal. Development of a small multifuel stove will reduce the types of fuel necessary in an area of operations, thereby simplifying logistic support.

4. ESSENTIAL CHARACTERISTICS. The Lightweight, One-burner Stove will:

- a. Be capable of burning diesel fuel, kerosene, aviation fuel (JP-4/5), or gasoline (leaded or unleaded) efficiently from sea level to 12,000 ft above sea level.
- b. Be capable of producing a minimum of 9000 BTUs at sea level.
- c. Weigh no more than 2 lbs (907g) complete, dry weight; 1.5 lbs (680g) desired.
- d. Have a maximum external volume of 210 in³ (3441 cm³) in the packed, ready-to-carry configuration; 150 in³ (2458 cm³) desired.
- e. Have a maximum fuel consumption rate of 4oz (.12 liter) per hour when operated at maximum BTU output at sea level.
- f. Have a minimum fuel capacity of 10 oz (.30 liter).
- g. Be capable of operating at ambient temperatures from -25°F (-30°C) to 125°F (52°C).
- h. Be capable of burning the required fuels to an efficiency level which will allow use of the stove in a five or ten-man arctic tent for at least eight hours without harmful effects to the occupants.
- i. Be designed to ensure that the stove body and/or case will provide a stable platform for the current canteen cup or a two liter pot.
- j. Have an integral carrying case capable of protecting the stove components.
- k. Have an integral windscreens. It is desired that the windscreens and carrying case be combined to form one dual purpose item.
- l. Have any tool(s) required for routine user maintenance provided as integral components.
- m. Be equipped with an integral hand pump to generate initial pressure for operation if a pressurized fuel system is required. Priming or preheating (if required) will be accomplished with same fuel contained in Stove's fuel tank.
- n. Have a control mechanism which will allow an evenly graduated adjustment of heat output.
- o. Be equipped with an integral mechanism to clean fuel jets and ports.

p. Be designed to minimize the danger of fuel leaks and flareup upon initial lighting regardless of the attitude of the stove.

q. Have an mean-time-between-failure (MTBF) of at least 200 ignitions and 300 hours of operation.

5. OTHER WARFARE AREAS CONCERNED. The introduction of the Lightweight, One-burner Stove will affect Mission Area-216.1 (Combat Service Support; Individual Clothing and Equipment).

6. RELATED EFFORTS. No other Service has a current requirement document in this area.

7. TECHNICAL FEASIBILITY, ENERGY-EFFECTIVENESS IMPACT, AND COST FORECAST

a. Technical Feasibility. A Lightweight One-burner Stove is technically feasible.

b. Energy-Effectiveness Impact. Not applicable.

c. Cost Estimate. The unit cost of this item is estimated to be \$50 or less; development cost to include safety testing is estimated at \$30,000.